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Expanding the Food Repertoire of a Child with Autism through Parent's Self-Recording

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Abstract

The present case study examined the effects of self-recording by mother in expanding the food repertoire of an autistic child with an unbalanced diet. The record of the foods by the mother indicated that the child ate several new foods that were presented for the first time. Because these new foods were not re-presented, the mother was instructed to also record own strategies for food preparation. As a result, the number of new foods and the re-preparation and re-consumption of those foods increased. These findings show that the self-recording could be useful as an effective and economical method in parent-training procedure, and imply that an unbalanced diet in a child with autism may not attribute to the autism but to the child's environment.

Key Words : unbalanced diet, self-recording, parent-training, autism

Person with an unbalanced diet, who may be called as fastidious eater, is considered to have a behavior problem in Japan. This is not only because it is bad manners according to Japanese customs, but also because an unbalanced diet increases probability of allergies, tooth decay, obesity, and cardiovascular disease in later life (Kizima, 1980[5]; Takahashi, 1993[10]). Children with autism in particular are likely to have an unbalanced diet (Baron-Cohen & Bolton, 1993[1]). For example, Miyazaki, Hattori, and Mitani (1991[7]) assessed 108 mothers who had a child with mental retardation, Down's syndrome, autism, or a physical handicap regarding the child's diet, and reported that the most of commonly reported problem was an unbalanced diet (29%). Moreover, an unbalanced diet was reported in 50% of the cases in autism. Torisky, Torisky, Kaplan, and Speicher (1993[11]) also reported that children with autism had fewer food choices than other diagnostic groups in Food Sensitivity Testing. Thus, as suggested by Miyazaki et al. (1991[7]), an unbalanced diet may be considered as one of the obsessive or ritualistic behaviors which attribute to to the pathological aspect of autism.

However, an unbalanced diet may not always be attributable to the autism. It can be developed and maintained as a result of the child-environment interactions. The word "environment" in this paper refers to the environment that is created or mainpulated by the child's parents. For example, parents may repeatedly prepare certain foods to

avoid the anticipated child's tantrums when the food is not prepared according to the child's wishes (Baron-Cohen & Bolton, 1993[1]).

If an unbalanced diet in an autistic child is developed and maintained simply due to the environment created by his or her parents, it should be changed through arranging the environment in certain ways. According to Herbert and Baer (1972[4]), the social interactions between a deviant child and their parents improved by utilizing the parents' self-recording method to elicit the child's appropriate behaviors. Their findings also suggested that it should be a cost-effective intervention to improve child's behaviors in parent-training procedure.

The present study was intervened to expand the food repertoire in an autistic child with an unbalanced diet, through the parent's self-recording method.

Method

Subject

Toshi was a 4 year old Japanese male with autism. He neither had receptive nor expressive language. He was trained to make requests by a few hand signs at a counseling and intervention service center where he visited once a week with his mother. He lived with both parents, an older brother (6 years old) and a younger sister (1 year old). His mother was a housewife. As reported by his mother, his problem was an unbalanced diet; eating only a few types of foods such as rice and salmon-flakes. The mother perceived his dietary problem to be a characteristic of autism.

Target behavior and data collection

The target behavior was defined as eating at least a morsel of a new food without ruminating it or spitting it out. Data were collected at each meal by his mother, and brought to us for review at a weekly meetings. Ninety eight percent of the total data during the 13 weeks were collected.

Procedure

Recording foods without sheets (A). Our intervention began with the introduction of food recording process to the mother without special recording sheets. We gave the mother the following instructions: (1) to record new foods which Toshi ate at each meal, (2) to mark the foods which he ate for the first time, and (3) to bring all the records for the preceding seven days to weekly meetings. The authors only gave verbal approval when she followed instructions and when her son's ate new foods.

Recording foods with sheets (B). The procedure previously mentioned in (A) was modified by having the mother record the child's food consumption on new food-recording sheets developed by the authors. It facilitated the collection of more detailed data. The mother was required to record the foods she prepared, the foods eaten out of foods prepared, the quantity of foods eaten, the hours taken to consume a meal, the child's physical condition, and any sweets eaten during the day.

Parent's self-recording of strategies for food preparation (C). Procedure (B) was then modified by having the mother monitor her own behavior. She was given a self-recording sheet which required her to describe strategies which she devised herself to help her son eat new foods. Along with the new sheet, she was told to record strategies which she had devised to help her son eat new foods

regardless of the results, and to bring all the records to weekly meetings. In addition, the mother was given the following instructions: (1) do not force the child to eat, (2) do not serve more than four meals a day, and (3) do not allow a meal to continue for more than one hour. Verbal approval for all of the self-devised behaviors described was added.

Results

Figure 1 shows the cumulative number of new foods which the subject ate for the first time. In Phase A, the number of new foods increased from 0 to 4 over two weeks. This number increased from 4 to 8 for the first two weeks in Phase B. However, there was no change in the number during the last two weeks. In Phase C, the number of new foods increased from 8 to 24 during seven weeks.

Figure 2 presents the frequencies of opportunities for preparation of the new foods before he ate them. Twelve out of 24 new foods were prepared more than once, and 6 new foods had been prepared more than twice. The information was not collected in Phase A.

The frequencies of re-preparation and re-consumption of the new foods are displayed in Figure 3. In Phase A, these data were not recorded. In Phase B, the frequency of both re-preparation and re-consumption were 3 in the fourth week. In Phase C, the frequency of re-preparation was 70 and that of re-consumption was 63. The subject had a cold in

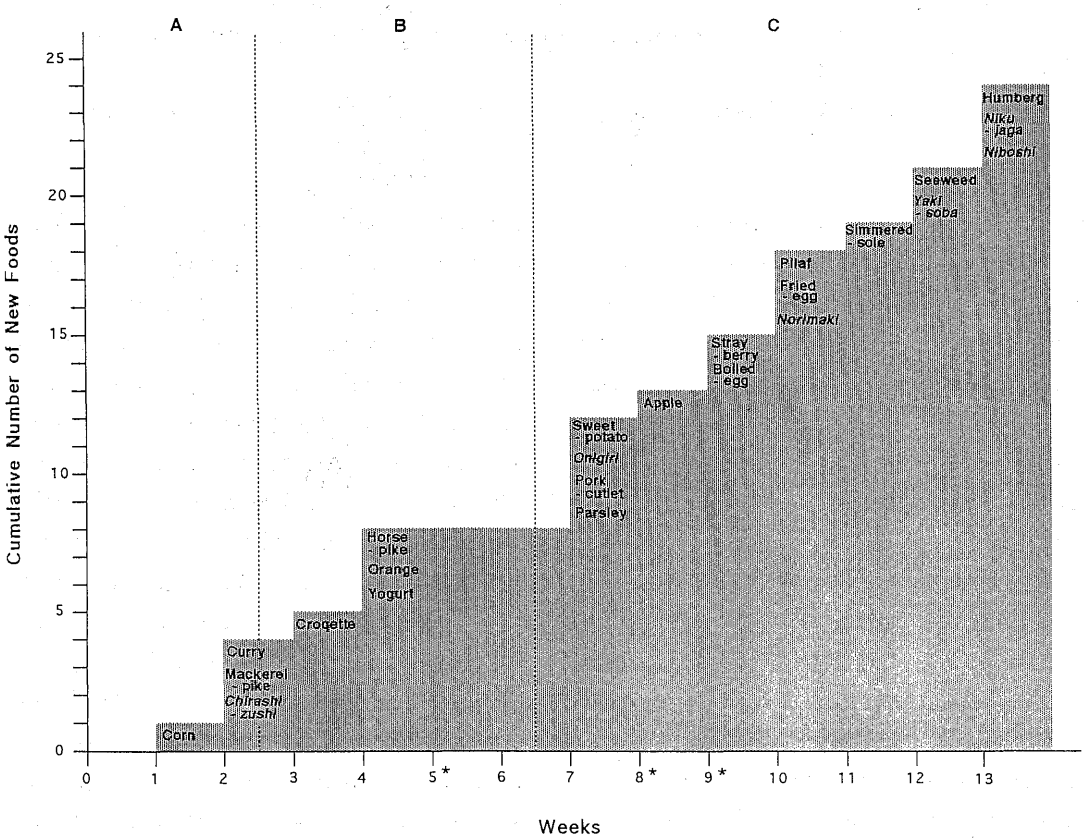

Fig. 1 The cumulative number of foods which the subject ate for the first time. The asteriks indicate weeks in which the subject had a cold.

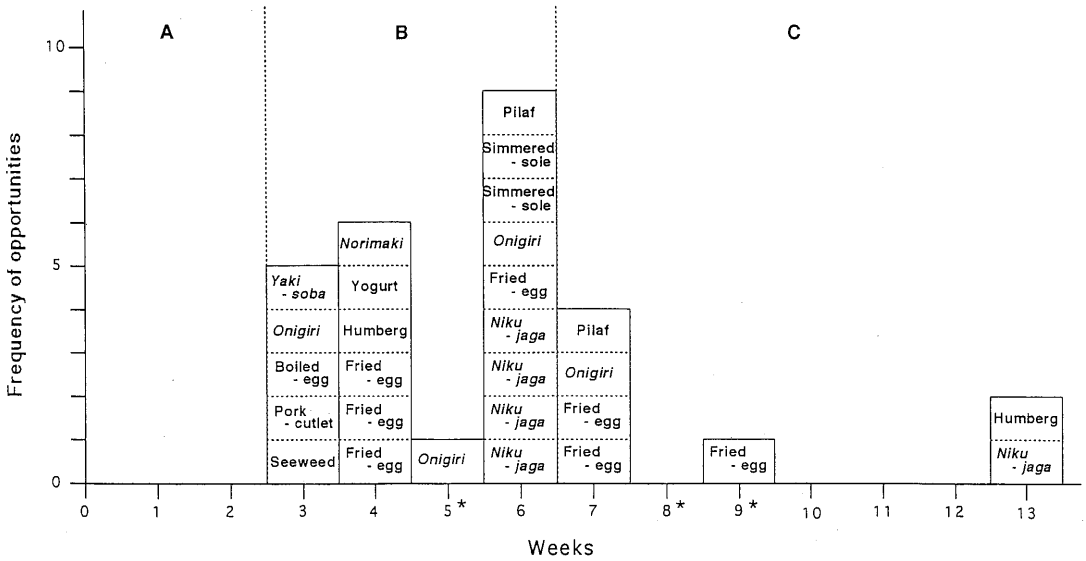

Fig. 2 The frequency of opportunities for preparation of new foods before the sbject ate them. The astrisks indicate weeks in which the subject had a cold.

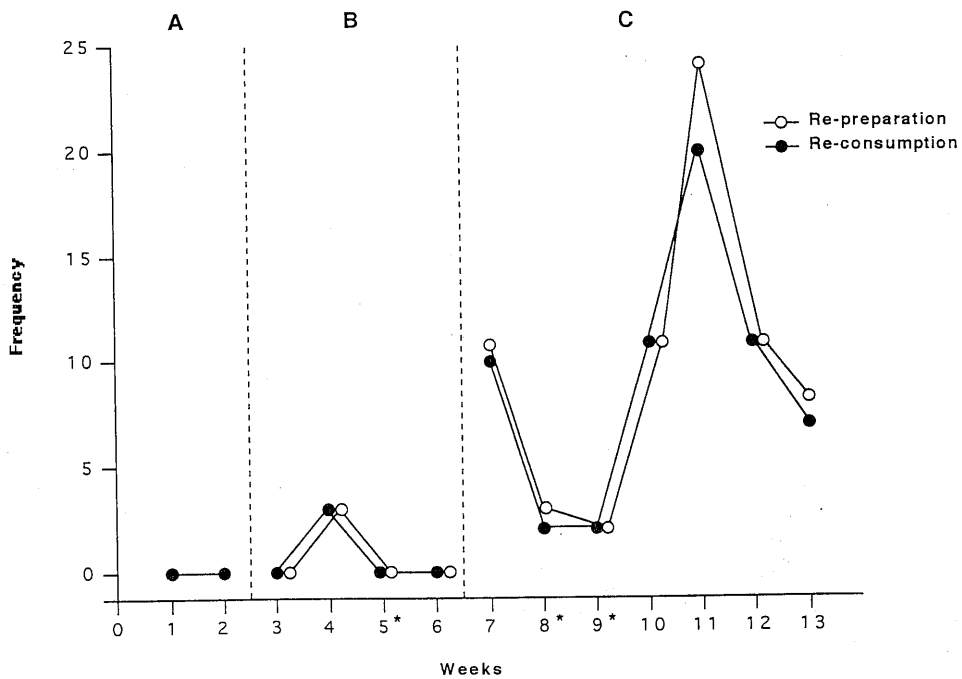

Fig. 3 The frequency of re-preparation and re-consumption of new foods. The asterisks indicate weeks in which the subject had a cold.

weeks 5, 8, and 9.

Table 1 indicates the mother's strategies for helping him eat new foods (i.e., self-devised behaviors) and the results from her self-recording sheets. The mother made 12 attempts to get the child eat one of 10 target foods. Four of the foods had been prepared more than twice before he ate them. Her strategy employed techniques such as cutting the target foods into smaller pieces, mixing the target foods with other foodstuff which he usually eats, and using the familiar dish to encourage him in eating other foodstuff. She employed one of the techniques at a time or the first two techniques described above in the combination.

Discussion

A child with an unbalanced diet

In this study, an unbalanced diet in an autistic child was improved by the rearrangement of the environment. Three factors concerned in expanding his food repertoire were (1) preparing foods, which he would only eat in certain cooking styles, (2) preparing novel foods, and (3) re-preparing new foods he ate for the first time.

The mother succeeded in getting her child eat new foods by cutting the target foods into smaller pieces, and by mixing the target foods with other foodstuff which he usually eats. Then she gradually faded out the familiar foodstuff. Serving the target food in the familiar dish did not encourage the child to eat (cf. Table 1). The discriminative stimuli in his eating behavior may be related to the appearance of the food itself rather than the dish used. Therefore, we should be able to analyze a person's obsessive behaviors at meals in terms of the discriminative stimuli. For example, Torisky et al. (1993[11]) indicated that many children with certain handicaps tend to respond to foods of certain colors.

The more important point to discuss is how the stimulus control for his eating behavior by specific foods (i.e., an unbalanced diet) was developed and maintained. The process of the development and maintenace for his unbalanced diet can be as follows. At meal time, he left his seat or fingered foods. His mother stopped the problem behavior and tried to force him to eat. However, these mother's reactions caused him a tantrum. So she was obliged to prepare his favorite foods. Reduction of his tantrum reinforced her preparing his preferred foods. In turn, her preparing the foods reinforced his tantrum. As a result, his tantrum and her preparing the foods were maintained mutually. This cycle is called the "sick social cycle" (Malott, Whaley, & Malott, 1993[6]). However, his tantrum remained occurring frequently. In order to avoid his tantrum, she came to arrange the favorite foods beforehead. Further, her attributing his dietary problem to a characteristic of autism may result in concealing her own avoidance. As mentioned above, the unbalanced diet was developed and maintained as a result of the child-environment interactions. Therefore, the dietary problem can be resolved by identifying and interrupting the potential sick social cycle as well as other problem behavior.

Parent's self-recording

Self-recording and recording foods with the sheets, (i.e., Phase C) modified the way the mother of the autistic child prepared food, as anticipated by Herbert and Baer (1972[4]). The procedure in Phase C involved four components: (1) our instructions, (2) verbal approval of her self-devised behav-

Table 1 Parent's Strategies for Helping the Subject Eat New Foods

Week	*Food*	*Strategy*	*Result*
7	Parsley	Mixingit in pork-cutlet flour.	successful
7	*Udon*	Serving *Udon* (thick white noodles) in the same bowl used to serve chinese yellow noodles, which the subject will eat.	unsuccessful
7	Curry	Grinding up vegetables and encouraging the subject to eat, then gradually mixing with rice.	successful
7	White-sauce	Mixing with a little rice.	unsuccessful
10	Pilaf	Grinding up vegetables and encouraging the subject to eat, then giving green tea to drink.	successful
10	Pilaf	Sprinkling with salmon-flakes (a favorite food) at first.	successful
11	Simmered -sole	Breaking it up into smaller pieces and mixing it with rice, then sprinkling it with a little salmonflake.	successful
11	Pilaf	Cooking it with sausage.	successful
12	Seaweed	Putting it on chinese noodles, and then gradually increasing the amount given.	successful
12	Mackerel -pike	Breaking it up into smaller pieces.	successful
13	*Niku-jaga*	Mixing *Niku-jaga* (pork and potato) with rice, then increasing it gradually.	successful
13	Hamburg	Coating it with egg yolk.	successful

iors, (3) self-recording sheets which acquired discriminative functions for self-devised behaviors, and (4) food-recording sheets which acquired discriminative functions for the re-preparation of new foods that were eaten for the first time (Nelson & Hayes, 1981[8]; Risley & Hart, 1968[9]). Her son's willingness to eat the foods which she prepared in new styles also supported the procedure; particularly in the way that these sheets established the discriminative functions.

In Phase A and B, the mother recorded that he ate several new foods. In addition, during Phase B, she recorded data at meals in more details with the recording sheet. Nevertheless, she did not re-prepare the new foods and continued to prepare foods in the same style which her son would not eat. She may have paid more attention to her son's undesirable behaviors by recording negative events in details (Herbert & Baer, 1972[4]), and attributed those behaviors to autism (Bijou & Dunitz-Johnson, 1981[2]; Eikeseth & Lovaas, 1992[3]).

In Phase C, the mother was asked to self-record her strategies of food preparation as well as to record foods. We anticipated that this procedure would make the mother focus on the cooking styles of the foods rather than on the foodstuff itself, the unbalanced diet, or her son's autism. However, the procedure have some limitations because her devised strategies is not always reinfored directly by her child's food consumption. If the tech-

niques that she developed to help her son eat new foods were unsuccessful, we had two alternatives as a backup ; to give the mother some advice regarding further steps, and to modify the self-recording sheet. Therefore, we planned to devise the procedure to shape the mother's self-reports (Zettle & Hayes, 1982[12]). Future research should examine the effects in shaping the parent's self-reports on remote intervention from the perspective of parent-child interactions and related problems.

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